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Field observations on the Azores Buzzard *Buteo buteo rothschildi*

by Tiziano Londei

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The first human population settled the Azores in the 15th century and named the group “Açores” probably after the resident buzzard (“Açor” is the Portuguese word for Goshawk), the only resident diurnal raptor. Although this conspicuous bird is well-known in the Azores, there have been few published studies on it. The most comprehensive account is still that by Bannerman & Bannerman (1966), incorporating contributions by the Azorean ornithologist J. Agostinho. More information on taxonomy is offered by James (1984), who found this small-sized race of the Common Buzzard clearly distinct subspecifically on the basis of the statistical analysis of museum specimens.

While in the Azores from 17 to 29 August 1992, I had many opportunities of seeing these very common birds in the field. I made most of the observations in São Miguel (eight days) and to a lesser extent Faial (two days) and Terceira (two days). I used 8 × 40 binoculars and took photographs using a 300-mm lens.

Morphology

As can be seen in Figures 1 and 2, *rothschildi* is rather similar to nominate *buteo* in general shape, but it looks less massive. In flight its tail looks proportionately longer, whereas it is proportionately shorter from calculations of the tail-wing ratio (James 1984). I believe that the tail appears longer due to the relative narrowness of the wing.

A. H. James (*in litt.* 13 June 1993) stressed the resemblance in shape and size between *rothschildi* and *vulpinus*. However, while the skeletal



Figure 1. *Buteo buteo rothschildi* near São Mateus, Terceira, 22 August 1992.

proportion of the hand to the entire wing is considerably higher in *vulpinus* than nominate *buteo* (Eck 1991), my photographs of *rothschildi* show blunt wings, in which the above proportion is conceivably lower even than in nominate *buteo*. This consideration may be interesting in that James (1984) postulated that the Madeiran, Canary and Cape Verde Archipelagos were colonised by buzzards from continental Europe, where, nowadays, *vulpinus* is the typically migratory race of the Common Buzzard. But the Azores would be rarely influenced by buzzard immigration, as also suggested by the stable plumage pattern of the Azorean population (James 1984). I suggest that the particular wing shape of the Azores Buzzard may have evolved in the Azores, and the light builds of *rothschildi* and *vulpinus* may have resulted from separate adaptations to similar needs (e.g., to reducing the dependence on thermals).

Behaviour

It seemed from my observations that buzzards in the Azores, as they do elsewhere, preferred hunting when the weather was sunny and the ground dry. During three sunny days in São Miguel, from late morning to mid-afternoon, I recorded all the buzzards I saw while travelling by local buses across agricultural land (no route repeated). In this way, I counted a total of 137 birds in 55 km (2.5/km).



Figure 2. Hovering sequences of an individual of *Buteo b. rothschildi* (A) and of nominate *buteo* (B), starting (top) from equivalent postures. Since these outlines are from equally (0.4 s) spaced frames, a difference in flapping rate is suggested. Also a difference in silhouette should be noted.

I saw buzzards flying over all types of ground in the three islands I visited, from small towns to dense forests of the introduced coniferous tree *Cryptomeria japonica*. In the protected landscape zone of Monte da Guia, Faial, I saw a buzzard taking an unidentified prey from a coastal rocky surface sparsely covered with endemic *Erica azorica* and *Myrica faya* shrubs. Buzzard foraging, however, was most frequent on pasture land (20/38 observations), often in close proximity of grazing cattle (13/38 observations). In all habitats there was a marked tendency (30/38 observations) for foraging near stands of the reed *Arundo donax*, which is an introduced invasive species (Sjögren 1984).

Cramp & Simmons (1979) mention hanging in the wind or (when the wind fails) hovering before dropping onto prey as an occasional foraging technique of the Common Buzzard. It was the only method that I recorded for *rothschildi* (38 observations). The search flight usually ended with the bird hanging or hovering at some 10 m from the ground; it then dived, often hung or hovered for some seconds at 5–10 m from the ground, then dropped with wings and tail raised, controlling for speed. Even if the prey was caught, the buzzard did not rest on the ground more than a few seconds.

The only prey I was able to identify with certainty was a lizard and a large grasshopper, both taken from near reeds. Many other observed prey items looked like these. Furthermore, I often saw lizards taking cover amid the emerging rhizomes of the reeds, and I found some *Locusta migratoria* (form *danica*) adults resting near the reed tops. These grasshoppers were also present in the pasture grass, together with smaller species. Such insects are likely to hop away when cattle pass nearby, so that buzzards flying over cattle may locate their prey more easily. Throughout my observations in the Azores, I never saw anything like a mammal or bird in the talons of a buzzard.

I occasionally saw a buzzard skimming over reed tops, but never observed this as a successful hunting method. Although conditions and behaviour indicated locusts as a main prey, I never saw a buzzard

walking on the ground, i.e. exploiting a feeding technique which is usual for the Common Buzzard elsewhere when locusts are abundant (Cramp & Simmons 1979).

In flight, the wing-beat of the Azores Buzzard is noticeably faster than that of the nominate race. Using motor-driven photograph sequences, I calculated a flapping rate of 4.3/s for an individual, compared to 3.5/s for an individual of nominate *buteo* in northern Italy, both during level flapping flight. My photographs are insufficient in number to calculate the flapping rate of hovering, but suggest a difference between *rothschildi* and nominate *buteo* (Fig. 2).

During my observations the birds were very vocal. After my presence alarmed a family in their presumed nest area (Lagoa do Congro, São Miguel), I could hear both adult calls and the shriller juvenile calls for some time. This confirmed what I had felt on previous occasions, i.e. that the voice of *rothschildi* sounded different from that of nominate *buteo*, being less husky, rather fluty. The *pee-yah* call (Weir & Picozzi 1975) of *rothschildi* seemed to descend less in pitch, maybe because its *yah* component was fainter. This is also suggested by a close examination of sonagrams from the Azores Buzzard (Knecht & Scheer 1971), in which the final part of the call appears less marked than in the sonagram from a Swedish bird (Cramp & Simmons 1979). Racial differences in voice between *rothschildi* and nominate *buteo* have not previously been reported.

General discussion

On the basis of both morphological and behavioural characters, the Azores Buzzard appears to be a quite distinct form; but more information is needed on its ecology.

Agostinho never saw the Azores Buzzard "attacking pigeons or other wild birds, only rats and rabbits" (Bannerman & Bannerman 1966). Melo Medeiros (pers. comm.) found rabbit bones at buzzard nests. However, my observations that the buzzards were most active when the sun was at its highest support the doubts expressed by Bannerman & Bannerman (1966), that the Azores Buzzard does not generally rely on rabbits as a source of food. This also seems a valid inference for rats. Anyway, since all Azorean mammals except one bat species have been introduced (Agostinho), they cannot have formed any part of the diet of this raptor when it colonised the Azores, almost certainly long ago (James 1984). Due to seasonal uniformity in these oceanic islands, grasshoppers and lizards might suffice the Azores Buzzard's needs all year round.

De Vries' opinion (in James 1984) that the reason for the lack of predatory species in the Azores is lack of prey species cannot be accepted without reservation, because, in addition to grasshoppers and lizards, there are many resident bird species that could be a reliable food source for a diversity of birds of prey, some of which have been recorded in the Azores (Le Grand 1983). However, if the alternative explanation were true, that the absence of other raptors is due to successful trophic competition by the Azores Buzzard, this raptor

would have to feed on a wide diversity of prey. Literature and my observations fail to support this. It may be noted that most mid-oceanic islands worldwide tend to have only a single diurnal raptor species.

From James' (1984) values, *rothschildi* has proportionately larger bill and feet than nominate *buteo* (the latter is similar to *vulpinus* in these proportions). Large bill and feet also appear in other island races of the Common Buzzard; at least in the case of *arrigonii* (Sardinia), it is almost certainly a result of separate evolution from *rothschildi*. In a study of island passerines and their mainland counterparts, Grant (1965) found that the bill and tarsi are usually larger in the island forms, and he postulated that these differences are the result of the extension of activities related to a broader niche of the island populations. This explanation, however, does not seem to apply to the large-billed, large-footed Azores Buzzard, at least under the present conditions (nor to the analogous buzzard of Sardinia, which, in addition, must compete with several other raptors).

Unlike Hartog & Lavaleye (1981), I found the density of the Azores Buzzard impressive. The only previous quantitative information is that of Moore (1975), who recorded 10 buzzards on transects totalling 4.73 km in São Miguel in March. The resulting average is 2.1/km, similar to what I recorded. The habitat components I found to be associated with the Azores Buzzard's feeding activity, namely stands of reeds and cattle pastures, are the result of human settlement. A thorough study of this raptor's diet might reveal pre-adaptations to the present environment as well as adaptive changes undergone in the last few centuries.

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Re-evaluation of the taxonomic status of *Phylloscopus goodsoni* Hartert

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In 1903 Katsumata obtained two specimens of a *Phylloscopus* warbler on Hainan Island, south China, which were later named *Phylloscopus goodsoni* (Hartert 1910). Ticehurst (1938) did not recognize *goodsoni* as a distinct species, but treated it as a subspecies of *P. ricketti* (breeding in south-central China). This latter treatment was followed by, for example, Williamson (1967), Watson *et al.* (1986) and Howard & Moore (1991). Cheng (1987) treated both *P. ricketti* and *goodsoni* as subspecies of *P. cantator* (breeding in northeastern India and Burma). Both of the specimens of *goodsoni* available to Hartert are in the American Museum of Natural History, New York (AMNH) (male collected at Lei Muimon on 12 January 1903, AMNH No. 450282 [type], and male collected on south Hainan on 22 December 1903, AMNH No. 450283). There is also one specimen in the Natural History Museum, Tring (BMNH), which shows the characters of *goodsoni* and is accepted as such in this paper. It was collected by J. Delacour and P. Jabouille at Konang Tcheou Wan in southwestern Guangdong Province, just north of Hainan Island, on 17 March 1933 (BMNH Reg. No. 1935.10.23.577) and labelled as *P. reguloides fokiensis*.

Description of *goodsoni*

Lateral crown-stripes olive-grey, darker posteriorly than anteriorly. Pale median crown-stripe more olive-tinged and less well defined on the anterior than on the posterior part. Upperparts uniformly green. Double pale yellow wing-bars, the one on the greater coverts relatively broad, the one on the median coverts narrower. Underside yellow, deepest on throat and breast, becoming paler towards the rear. White margin on inner web of outermost tail-feather ≤ 1 , 0.5 and 1 mm, respectively, in the three specimens. Lower mandible all pale. In the three specimens P9, counted descendently, falls between P4/P3, P2/P1 and P3/P2, respectively, and P8 between P6/P5, \approx P5 and P6/P5, respectively. P5–P8 are emarginated. Measurements of wing, tail and bill are given in Table 1. All three specimens are labelled as males, but the short wing and tail of one individual indicate that it may actually be a female, as suggested by Hartert (1910).